Financial Performance Analysis Using Power BI

Objective

The objective of this project is to analyze financial performance using Power BI by creating interactive visualizations. This analysis includes insights into sales, profit, discounts, and cost relationships across various dimensions such as country, product, and time.

Data Preparation

1. Data Import

- The dataset was imported into Power BI from a CSV file.
- Fields like `Date`, `Month Number`, `Month Name`, and `Year` were formatted correctly to ensure time-based analysis.
- Numeric fields (`Sales`, `Profit`, `Discounts`, etc.) with currency symbols and commas were cleaned and converted to appropriate data types.

2. Calculated Measures

The following calculated measures were created using DAX for deeper analysis:

- **Profit Margin**:
  $$\text{Profit Margin} = \frac{\text{SUM}([\text{Profit}])}{\text{SUM}([\text{Sales}])}$$
- **Total Discounts**:
  $$\text{Total Discounts} = \text{SUM}([\text{Discounts}])$$
- **Total Revenue**:
  $$\text{Total Revenue} = \text{SUM}([\text{Gross Sales}])$$
- **Cost-to-Sales Ratio**:
  $$\text{Cost-to-Sales Ratio} = \frac{\text{SUM}([\text{COGS}])}{\text{SUM}([\text{Sales}])}$$

Visualizations and Analysis

1. Sales and Profit by Country (Bar Chart)

- A bar chart was created to compare **Sales** across countries.
- The **Profit** field was used as a color scale to highlight profitability variations by country.
- Filters for `Segment` and `Product` were added to refine analysis.

2. Sales and Profit Trend Over Time (Line Graph)

- A line graph visualized the trends of **Sales** and **Profit** over time.
- Granular analysis was achieved by adding `Month Name` alongside `Year` on the X-axis.
- The `Segment` field was used for color-coding to highlight business segment-specific trends.

3. Gross Sales vs Discounts (Scatter Plot)

- A scatter plot was used to examine the relationship between **Gross Sales** and **Discounts**.
- Data points were differentiated by **Product** using color and size markers.
- This visualization revealed patterns in the effect of discounts on sales.

4. Sales by Product and Discount Band (Heat Map)

- A matrix visual was used to create a heat map showing **Sales** across **Products** and **Discount Bands**.
- Conditional formatting was applied to the **Sales** values to represent high and low performance with a gradient color scale.

Interactive Filters

Interactive slicers were added to allow users to refine the dashboard:

1. **Date Range Filter**: A range slider for selecting specific time periods.
2. **Segment Filter**: Enabled toggling between segments like Consumer and Corporate.
3. **Country Filter**: Allowed users to focus on individual countries.
4. **Discount Band Filter**: Analyzed profitability and sales impact by discount levels.

Dashboard Layout

A clean and intuitive dashboard was designed with the following components:

1. **Top**: Bar Chart showing Sales and Profit by Country.
2. **Middle**: Line Graph visualizing Sales and Profit trends over time.
3. **Side**: Scatter Plot for Gross Sales vs Discounts and Heat Map for Sales by Product and Discount Band.
4. **Filters**: Positioned for easy interaction, enabling dynamic exploration of data.

Financial Dashboard

Insights and Key Findings

1. **Country-Wise Performance**:
   - Countries with higher sales volumes also demonstrated higher profit margins in most cases.
   - Some countries with high sales showed reduced profitability, indicating potential issues with cost management or discounting strategies.
2. **Sales Trends**:
   - Sales and profits displayed seasonal trends, with specific months consistently outperforming others.
   - Business segments showed distinct performance trends over time.
3. **Discount Analysis**:
   - The scatter plot revealed that higher discounts were not always correlated with higher sales.
   - The heat map showed that certain discount bands were highly effective for specific products.
4. **Cost Management**:
   - The Cost-to-Sales Ratio highlighted opportunities for optimizing costs in low-performing regions or product categories.

Conclusion

This Power BI dashboard provided actionable insights into the financial performance of the business, enabling stakeholders to:

- Identify high-performing countries and products.
- Understand the impact of discounts on sales.
- Optimize cost management strategies.
- Visualize trends across different business segments and time periods.